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Search Results - Record(s) 1 through 15 of 15 returned.

☐ 1. Document ID: US 6643737 B1

Using default format because multiple data bases are involved.

L7: Entry 1 of 15

File: USPT

Nov 4, 2003

US-PAT-NO: 6643737

DOCUMENT-IDENTIFIER: US 6643737 B1

TITLE: Cache lock device and method therefor

DATE-ISSUED: November 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ono; Shinsuke	Tokyo			JP

US-CL-CURRENT: [711/128](#); [711/133](#), [711/136](#), [711/144](#), [711/145](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 2. Document ID: US 6618803 B1

L7: Entry 2 of 15

File: USPT

Sep 9, 2003

US-PAT-NO: 6618803

DOCUMENT-IDENTIFIER: US 6618803 B1

TITLE: System and method for finding and validating the most recent advance load for a given checkload

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 3. Document ID: US 6216200 B1

L7: Entry 3 of 15

File: USPT

Apr 10, 2001

US-PAT-NO: 6216200

DOCUMENT-IDENTIFIER: US 6216200 B1

TITLE: Address queue

h e b b g e e f e h h e f b e

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 4. Document ID: US 6154812 A

L7: Entry 4 of 15

File: USPT

Nov 28, 2000

US-PAT-NO: 6154812

DOCUMENT-IDENTIFIER: US 6154812 A

TITLE: Method for inhibiting thrashing in a multi-level non-blocking cache system

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 5. Document ID: US 6148371 A

L7: Entry 5 of 15

File: USPT

Nov 14, 2000

US-PAT-NO: 6148371

DOCUMENT-IDENTIFIER: US 6148371 A

TITLE: Multi-level non-blocking cache system with inhibiting thrashing

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 6. Document ID: US 6081873 A

L7: Entry 6 of 15

File: USPT

Jun 27, 2000

US-PAT-NO: 6081873

DOCUMENT-IDENTIFIER: US 6081873 A

**** See image for Certificate of Correction ****

TITLE: In-line bank conflict detection and resolution in a multi-ported non-blocking cache

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 7. Document ID: US 6041396 A

L7: Entry 7 of 15

File: USPT

Mar 21, 2000

US-PAT-NO: 6041396

DOCUMENT-IDENTIFIER: US 6041396 A

TITLE: Segment descriptor cache addressed by part of the physical address of the desired descriptor

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 8. Document ID: US 6029212 A

L7: Entry 8 of 15

File: USPT

Feb 22, 2000

US-PAT-NO: 6029212

DOCUMENT-IDENTIFIER: US 6029212 A

TITLE: Method of handling arbitrary size message queues in which a message is written into an aligned block of external registers within a plurality of external registers

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 9. Document ID: US 5930819 A

L7: Entry 9 of 15

File: USPT

Jul 27, 1999

US-PAT-NO: 5930819

DOCUMENT-IDENTIFIER: US 5930819 A

TITLE: Method for performing in-line bank conflict detection and resolution in a multi-ported non-blocking cache

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 10. Document ID: US 5845103 A

L7: Entry 10 of 15

File: USPT

Dec 1, 1998

US-PAT-NO: 5845103

DOCUMENT-IDENTIFIER: US 5845103 A

TITLE: Computer with dynamic instruction reuse

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 11. Document ID: US 5835925 A

L7: Entry 11 of 15

File: USPT

Nov 10, 1998

US-PAT-NO: 5835925

DOCUMENT-IDENTIFIER: US 5835925 A

TITLE: Using external registers to extend memory reference capabilities of a microprocessor

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 12. Document ID: US 5644748 A

L7: Entry 12 of 15

File: USPT

Jul 1, 1997

US-PAT-NO: 5644748

DOCUMENT-IDENTIFIER: US 5644748 A

**** See image for Certificate of Correction ****

TITLE: Processor system including an index buffer circuit and a translation look-aside buffer control circuit for processor-to-processor interfacing

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 13. Document ID: US 5621896 A

L7: Entry 13 of 15

File: USPT

Apr 15, 1997

US-PAT-NO: 5621896

DOCUMENT-IDENTIFIER: US 5621896 A

TITLE: Data processor with unified store queue permitting hit under miss memory accesses

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 14. Document ID: US 5406504 A

L7: Entry 14 of 15

File: USPT

Apr 11, 1995

US-PAT-NO: 5406504

DOCUMENT-IDENTIFIER: US 5406504 A

TITLE: Multiprocessor cache examiner and coherency checker

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 15. Document ID: US 5305458 A

L7: Entry 15 of 15

File: USPT

Apr 19, 1994

US-PAT-NO: 5305458

DOCUMENT-IDENTIFIER: US 5305458 A

TITLE: Multiple virtual storage system and address control apparatus having a designation table holding device and translation buffer

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Term	Documents
(3 AND 4).PGPB,USPT.	15
(L3 AND L4).PGPB,USPT.	15

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Search Results - Record(s) 1 through 20 of 69 returned.

☐ 1. Document ID: US 20030217251 A1

Using default format because multiple data bases are involved.

L14: Entry 1 of 69

File: PGPB

Nov 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030217251

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030217251 A1

TITLE: Prediction of load-store dependencies in a processing agent

PUBLICATION-DATE: November 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Jourdan, Stephan J.	Portland	OR	US	
Boggs, Darrell D.	Aloha	OR	US	
Miller, John Alan	Portland	OR	US	
Singhal, Ronak	Beaverton	OR	US	

US-CL-CURRENT: [712/225](#); [712/216](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 2. Document ID: US 20030200402 A1

L14: Entry 2 of 69

File: PGPB

Oct 23, 2003

PGPUB-DOCUMENT-NUMBER: 20030200402

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030200402 A1

TITLE: Memory isolation through address translation data edit control

PUBLICATION-DATE: October 23, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Willman, Bryan Mark	Bellevue	WA	US	
England, Paul			US	
Peinado, Marcus			US	

h e b b g e e f e f e f b e

US-CL-CURRENT: 711/154; 711/202

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 3. Document ID: US 20030177340 A1

L14: Entry 3 of 69

File: PGPB

Sep 18, 2003

PGPUB-DOCUMENT-NUMBER: 20030177340

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030177340 A1

TITLE: Non-stalling circular counterflow pipeline processor with reorder buffer

PUBLICATION-DATE: September 18, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Janik, Kenneth J.	Hillsboro	OR	US	
Lu, Shih-Lien L.	Corvallis	OR	US	
Miller, Michael F.	Hillsboro	OR	US	

US-CL-CURRENT: 712/219; 712/23

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 4. Document ID: US 20020174320 A1

L14: Entry 4 of 69

File: PGPB

Nov 21, 2002

PGPUB-DOCUMENT-NUMBER: 20020174320

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020174320 A1

TITLE: Index-based scoreboarding system and method

PUBLICATION-DATE: November 21, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Yeluri, Sharada	San Jose	CA	US	

US-CL-CURRENT: 712/217

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 5. Document ID: US 20020099928 A1

L14: Entry 5 of 69

File: PGPB

Jul 25, 2002

PGPUB-DOCUMENT-NUMBER: 20020099928
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020099928 A1

TITLE: Non-stalling circular counterflow pipeline processor with reorder buffer

PUBLICATION-DATE: July 25, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Janik, Kenneth J.	Hillsboro	OR	US	
Lu, Shih-Lien L.	Corvallis	OR	US	
Miller, Michael F.	Hillsboro	OR	US	

US-CL-CURRENT: 712/216; 712/219

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWMC	Draw. De
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☐ 6. Document ID: US 20010010073 A1

L14: Entry 6 of 69

File: PGPB

Jul 26, 2001

PGPUB-DOCUMENT-NUMBER: 20010010073
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010010073 A1

TITLE: Non-stalling circular counterflow pipeline processor with reorder buffer

PUBLICATION-DATE: July 26, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Janik, Kenneth J.	Hillsboro	OR	US	
Lu, Shih-Lien L.	Corvallis	OR	US	
Miller, Michael F.	Hillsboro	OR	US	

US-CL-CURRENT: 712/218

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWMC	Draw. De
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☐ 7. Document ID: US 20010010072 A1

L14: Entry 7 of 69

File: PGPB

Jul 26, 2001

PGPUB-DOCUMENT-NUMBER: 20010010072
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010010072 A1

TITLE: Instruction translator translating non-native instructions for a processor

into native instructions therefor, instruction memory with such translator, and data processing apparatus using them

PUBLICATION-DATE: July 26, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Yoshida, Toyohiko	Hyogo		JP	

US-CL-CURRENT: 712/209; 712/210, 712/227

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw De
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☐ 8. Document ID: US 6691222 B2

L14: Entry 8 of 69

File: USPT

Feb 10, 2004

US-PAT-NO: 6691222

DOCUMENT-IDENTIFIER: US 6691222 B2

TITLE: Non-stalling circular counterflow pipeline processor with recorder buffer

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw De
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☐ 9. Document ID: US 6662280 B1

L14: Entry 9 of 69

File: USPT

Dec 9, 2003

US-PAT-NO: 6662280

DOCUMENT-IDENTIFIER: US 6662280 B1

TITLE: Store buffer which forwards data based on index and optional way match

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw De
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☐ 10. Document ID: US 6553485 B2

L14: Entry 10 of 69

File: USPT

Apr 22, 2003

US-PAT-NO: 6553485

DOCUMENT-IDENTIFIER: US 6553485 B2

TITLE: Non-stalling circular counterflow pipeline processor with reorder buffer

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw De
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☐ 11. Document ID: US 6553482 B1

L14: Entry 11 of 69

File: USPT

Apr 22, 2003

US-PAT-NO: 6553482
DOCUMENT-IDENTIFIER: US 6553482 B1

TITLE: Universal dependency vector/queue entry

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw De
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☐ 12. Document ID: US 6505293 B1

L14: Entry 12 of 69

File: USPT

Jan 7, 2003

US-PAT-NO: 6505293
DOCUMENT-IDENTIFIER: US 6505293 B1

TITLE: Register renaming to optimize identical register values

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw De
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☐ 13. Document ID: US 6418525 B1

L14: Entry 13 of 69

File: USPT

Jul 9, 2002

US-PAT-NO: 6418525
DOCUMENT-IDENTIFIER: US 6418525 B1

TITLE: Method and apparatus for reducing latency in set-associative caches using set prediction

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw De
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☐ 14. Document ID: US 6351805 B1

L14: Entry 14 of 69

File: USPT

Feb 26, 2002

US-PAT-NO: 6351805
DOCUMENT-IDENTIFIER: US 6351805 B1
**** See image for Certificate of Correction ****

TITLE: Non-stalling circular counterflow pipeline processor with reorder buffer

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw De
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☐ 15. Document ID: US 6308259 B1

L14: Entry 15 of 69

File: USPT

Oct 23, 2001

US-PAT-NO: 6308259
DOCUMENT-IDENTIFIER: US 6308259 B1
**** See image for Certificate of Correction ****

TITLE: Instruction queue evaluating dependency vector in portions during different clock phases

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMOC	Draw De
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☐ 16. Document ID: US 6247115 B1

L14: Entry 16 of 69

File: USPT

Jun 12, 2001

US-PAT-NO: 6247115

DOCUMENT-IDENTIFIER: US 6247115 B1

**** See image for Certificate of Correction ****

TITLE: Non-stalling circular counterflow pipeline processor with reorder buffer

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMOC	Draw De
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☐ 17. Document ID: US 6233244 B1

L14: Entry 17 of 69

File: USPT

May 15, 2001

US-PAT-NO: 6233244

DOCUMENT-IDENTIFIER: US 6233244 B1

TITLE: Method and apparatus for reclaiming buffers

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMOC	Draw De
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☐ 18. Document ID: US 6216219 B1

L14: Entry 18 of 69

File: USPT

Apr 10, 2001

US-PAT-NO: 6216219

DOCUMENT-IDENTIFIER: US 6216219 B1

TITLE: Microprocessor circuits, systems, and methods implementing a load target buffer with entries relating to prefetch desirability

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMOC	Draw De
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☐ 19. Document ID: US 6216200 B1

L14: Entry 19 of 69

File: USPT

Apr 10, 2001

US-PAT-NO: 6216200

DOCUMENT-IDENTIFIER: US 6216200 B1

TITLE: Address queue

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 20. Document ID: US 6212623 B1

L14: Entry 20 of 69

File: USPT

Apr 3, 2001

US-PAT-NO: 6212623

DOCUMENT-IDENTIFIER: US 6212623 B1

**** See image for Certificate of Correction ****

TITLE: Universal dependency vector/queue entry

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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Term	Documents
LOAD	1649126
LOADS	384934
POINT\$3	0
POINT	3755064
POINTA	394
POINTAB	3
POINTABO	1
POINTAB6	1
POINTAC	1
POINTACL	3
POINTAC3	1
(L11 AND LOAD NEAR5 (POINT\$3 OR INDEX\$3)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	69

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Search Results - Record(s) 21 through 40 of 69 returned.

☐ 21. Document ID: US 6212622 B1

Using default format because multiple data bases are involved.

L14: Entry 21 of 69

File: USPT

Apr 3, 2001

US-PAT-NO: 6212622

DOCUMENT-IDENTIFIER: US 6212622 B1

TITLE: Mechanism for load block on store address generation

DATE-ISSUED: April 3, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Witt; David B.	Austin	TX		

US-CL-CURRENT: [712/216](#); [712/2](#), [712/234](#), [712/239](#), [712/5](#), [712/7](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw De
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☐ 22. Document ID: US 6163839 A

L14: Entry 22 of 69

File: USPT

Dec 19, 2000

US-PAT-NO: 6163839

DOCUMENT-IDENTIFIER: US 6163839 A

**** See image for [Certificate of Correction](#) ****

TITLE: Non-stalling circular counterflow pipeline processor with reorder buffer

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw De
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☐ 23. Document ID: US 6122727 A

L14: Entry 23 of 69

File: USPT

Sep 19, 2000

US-PAT-NO: 6122727

DOCUMENT-IDENTIFIER: US 6122727 A

TITLE: Symmetrical instructions queue for high clock frequency scheduling

h e b b cg b cc e

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 24. Document ID: US 6108770 A

L14: Entry 24 of 69

File: USPT

Aug 22, 2000

US-PAT-NO: 6108770

DOCUMENT-IDENTIFIER: US 6108770 A

TITLE: Method and apparatus for predicting memory dependence using store sets

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 25. Document ID: US 6098167 A

L14: Entry 25 of 69

File: USPT

Aug 1, 2000

US-PAT-NO: 6098167

DOCUMENT-IDENTIFIER: US 6098167 A

TITLE: Apparatus and method for fast unified interrupt recovery and branch recovery in processors supporting out-of-order execution

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 26. Document ID: US 6061777 A

L14: Entry 26 of 69

File: USPT

May 9, 2000

US-PAT-NO: 6061777

DOCUMENT-IDENTIFIER: US 6061777 A

TITLE: Apparatus and method for reducing the number of rename registers required in the operation of a processor

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 27. Document ID: US 6047369 A

L14: Entry 27 of 69

File: USPT

Apr 4, 2000

US-PAT-NO: 6047369

DOCUMENT-IDENTIFIER: US 6047369 A

TITLE: Flag renaming and flag masks within register alias table

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 28. Document ID: US 6026485 A

L14: Entry 28 of 69

File: USPT

Feb 15, 2000

US-PAT-NO: 6026485

DOCUMENT-IDENTIFIER: US 6026485 A

TITLE: Instruction folding for a stack-based machine

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 29. Document ID: US 6016542 A

L14: Entry 29 of 69

File: USPT

Jan 18, 2000

US-PAT-NO: 6016542

DOCUMENT-IDENTIFIER: US 6016542 A

TITLE: Detecting long latency pipeline stalls for thread switching

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 30. Document ID: US 5974524 A

L14: Entry 30 of 69

File: USPT

Oct 26, 1999

US-PAT-NO: 5974524

DOCUMENT-IDENTIFIER: US 5974524 A

TITLE: Method and apparatus for reducing the number of rename registers in a processor supporting out-of-order execution

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 31. Document ID: US 5963984 A

L14: Entry 31 of 69

File: USPT

Oct 5, 1999

US-PAT-NO: 5963984

DOCUMENT-IDENTIFIER: US 5963984 A

TITLE: Address translation unit employing programmable page size

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 32. Document ID: US 5961636 A

L14: Entry 32 of 69

File: USPT

Oct 5, 1999

US-PAT-NO: 5961636

DOCUMENT-IDENTIFIER: US 5961636 A

TITLE: Checkpoint table for selective instruction flushing in a speculative execution unit

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 33. Document ID: US 5953512 A

L14: Entry 33 of 69

File: USPT

Sep 14, 1999

US-PAT-NO: 5953512

DOCUMENT-IDENTIFIER: US 5953512 A

TITLE: Microprocessor circuits, systems, and methods implementing a loop and/or stride predicting load target buffer

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 34. Document ID: US 5913048 A

L14: Entry 34 of 69

File: USPT

Jun 15, 1999

US-PAT-NO: 5913048

DOCUMENT-IDENTIFIER: US 5913048 A

TITLE: Dispatching instructions in a processor supporting out-of-order execution

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 35. Document ID: US 5903749 A

L14: Entry 35 of 69

File: USPT

May 11, 1999

US-PAT-NO: 5903749

DOCUMENT-IDENTIFIER: US 5903749 A

TITLE: Method and apparatus for implementing check instructions that allow for the reuse of memory conflict information if no memory conflict occurs

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 36. Document ID: US 5887161 A

L14: Entry 36 of 69

File: USPT

Mar 23, 1999

US-PAT-NO: 5887161

DOCUMENT-IDENTIFIER: US 5887161 A

TITLE: Issuing instructions in a processor supporting out-of-order execution

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 37. Document ID: US 5875326 A

L14: Entry 37 of 69

File: USPT

Feb 23, 1999

US-PAT-NO: 5875326

DOCUMENT-IDENTIFIER: US 5875326 A

TITLE: Data processing system and method for completing out-of-order instructions

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 38. Document ID: US 5835745 A

L14: Entry 38 of 69

File: USPT

Nov 10, 1998

US-PAT-NO: 5835745

DOCUMENT-IDENTIFIER: US 5835745 A

TITLE: Hardware instruction scheduler for short execution unit latencies

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 39. Document ID: US 5828874 A

L14: Entry 39 of 69

File: USPT

Oct 27, 1998

US-PAT-NO: 5828874

DOCUMENT-IDENTIFIER: US 5828874 A

TITLE: Past-history filtered branch prediction

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 40. Document ID: US 5826094 A

L14: Entry 40 of 69

File: USPT

Oct 20, 1998

US-PAT-NO: 5826094

DOCUMENT-IDENTIFIER: US 5826094 A

TITLE: Register alias table update to indicate architecturally visible state

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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POINTAB	3
POINTABO	1
POINTAB6	1
POINTAC	1
POINTACL	3
POINTAC3	1
(L11 AND LOAD NEAR5 (POINT\$3 OR INDEX\$3)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	69

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Search Results - Record(s) 41 through 60 of 69 returned.☐ 41. Document ID: US 5765206 A**Using default format because multiple data bases are involved.**

L14: Entry 41 of 69

File: USPT

Jun 9, 1998

US-PAT-NO: 5765206

DOCUMENT-IDENTIFIER: US 5765206 A

TITLE: System and method for emulating a segmented virtual address space by a microprocessor that provides a non-segmented virtual address space

DATE-ISSUED: June 9, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hohensee; Paul H.	Nashua	NH		
Dice; David	Foxboro	MA		
Vandette; Robert G.	Andover	MA		
Reese; David L.	Westborough	MA		

US-CL-CURRENT: 711/203

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 42. Document ID: US 5752274 A

L14: Entry 42 of 69

File: USPT

May 12, 1998

US-PAT-NO: 5752274

DOCUMENT-IDENTIFIER: US 5752274 A

TITLE: Address translation unit employing a victim TLB

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 43. Document ID: US 5727176 A

L14: Entry 43 of 69

File: USPT

Mar 10, 1998

US-PAT-NO: 5727176

h e b b cg b cc e

DOCUMENT-IDENTIFIER: US 5727176 A

**** See image for Certificate of Correction ****

TITLE: Data processor with circuitry for handling pointers associated with a register exchange operation

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 44. Document ID: US 5715427 A

L14: Entry 44 of 69

File: USPT

Feb 3, 1998

US-PAT-NO: 5715427

DOCUMENT-IDENTIFIER: US 5715427 A

TITLE: Semi-associative cache with MRU/LRU replacement

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 45. Document ID: US 5655096 A

L14: Entry 45 of 69

File: USPT

Aug 5, 1997

US-PAT-NO: 5655096

DOCUMENT-IDENTIFIER: US 5655096 A

TITLE: Method and apparatus for dynamic scheduling of instructions to ensure sequentially coherent data in a processor employing out-of-order execution

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 46. Document ID: US 5634119 A

L14: Entry 46 of 69

File: USPT

May 27, 1997

US-PAT-NO: 5634119

DOCUMENT-IDENTIFIER: US 5634119 A

TITLE: Computer processing unit employing a separate millicode branch history table

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 47. Document ID: US 5619662 A

L14: Entry 47 of 69

File: USPT

Apr 8, 1997

US-PAT-NO: 5619662

DOCUMENT-IDENTIFIER: US 5619662 A

TITLE: Memory reference tagging

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 48. Document ID: US 5613132 A

L14: Entry 48 of 69

File: USPT

Mar 18, 1997

US-PAT-NO: 5613132

DOCUMENT-IDENTIFIER: US 5613132 A

**** See image for Certificate of Correction ****

TITLE: Integer and floating point register alias table within processor device

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 49. Document ID: US 5581719 A

L14: Entry 49 of 69

File: USPT

Dec 3, 1996

US-PAT-NO: 5581719

DOCUMENT-IDENTIFIER: US 5581719 A

TITLE: Multiple block line prediction

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 50. Document ID: US 5564118 A

L14: Entry 50 of 69

File: USPT

Oct 8, 1996

US-PAT-NO: 5564118

DOCUMENT-IDENTIFIER: US 5564118 A

TITLE: Past-history filtered branch prediction

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 51. Document ID: US 5548776 A

L14: Entry 51 of 69

File: USPT

Aug 20, 1996

US-PAT-NO: 5548776

DOCUMENT-IDENTIFIER: US 5548776 A

**** See image for Certificate of Correction ****

TITLE: N-wide bypass for data dependencies within register alias table

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 52. Document ID: US 5524262 A

L14: Entry 52 of 69

File: USPT

Jun 4, 1996

US-PAT-NO: 5524262

DOCUMENT-IDENTIFIER: US 5524262 A

**** See image for Certificate of Correction ****

TITLE: Apparatus and method for renaming registers in a processor and resolving data dependencies thereof

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 53. Document ID: US 5519841 A

L14: Entry 53 of 69

File: USPT

May 21, 1996

US-PAT-NO: 5519841

DOCUMENT-IDENTIFIER: US 5519841 A

TITLE: Multi instruction register mapper

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 54. Document ID: US 5499352 A

L14: Entry 54 of 69

File: USPT

Mar 12, 1996

US-PAT-NO: 5499352

DOCUMENT-IDENTIFIER: US 5499352 A

**** See image for Certificate of Correction ****

TITLE: Floating point register alias table FXCH and retirement floating point register array

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 55. Document ID: US 5471633 A

L14: Entry 55 of 69

File: USPT

Nov 28, 1995

US-PAT-NO: 5471633

DOCUMENT-IDENTIFIER: US 5471633 A

TITLE: Idiom recognizer within a register alias table

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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☐ 56. Document ID: US 5471593 A

L14: Entry 56 of 69

File: USPT

Nov 28, 1995

US-PAT-NO: 5471593

DOCUMENT-IDENTIFIER: US 5471593 A

TITLE: Computer processor with an efficient means of executing many instructions simultaneously

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 57. Document ID: US 5446912 A

L14: Entry 57 of 69

File: USPT

Aug 29, 1995

US-PAT-NO: 5446912

DOCUMENT-IDENTIFIER: US 5446912 A

**** See image for Certificate of Correction ****

TITLE: Partial width stalls within register alias table

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 58. Document ID: US 4890223 A

L14: Entry 58 of 69

File: USPT

Dec 26, 1989

US-PAT-NO: 4890223

DOCUMENT-IDENTIFIER: US 4890223 A

**** See image for Certificate of Correction ****

TITLE: Paged memory management unit which evaluates access permissions when creating translator

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 59. Document ID: US 4860197 A

L14: Entry 59 of 69

File: USPT

Aug 22, 1989

US-PAT-NO: 4860197

DOCUMENT-IDENTIFIER: US 4860197 A

TITLE: Branch cache system with instruction boundary determination independent of parcel boundary

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 60. Document ID: US 4800489 A

L14: Entry 60 of 69

File: USPT

Jan 24, 1989

US-PAT-NO: 4800489

DOCUMENT-IDENTIFIER: US 4800489 A

TITLE: Paged memory management unit capable of selectively supporting multiple address spaces

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	R/W/C	Draw. D
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(L11 AND LOAD NEAR5 (POINT\$3 OR INDEX\$3)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	69

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(L11 AND LOAD NEAR5 (POINT\$3 OR INDEX\$3)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	69

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<u>L13</u>	L11 and load near8 (point\$3 or index\$3)	80	<u>L13</u>
<u>L12</u>	L11 and load	139	<u>L12</u>
<u>L11</u>	L10 and l8	167	<u>L11</u>
<u>L10</u>	L4 and (scoreboard\$3 or table\$1 or cache) near6 entr\$3 near8 associat\$5	215	<u>L10</u>
<u>L9</u>	L8 and l7	400	<u>L9</u>
<u>L8</u>	l2 or l3	22743	<u>L8</u>
<u>L7</u>	L6 and associat\$4	565	<u>L7</u>
<u>L6</u>	L4 and (scoreboard\$3 or table\$1 or array or cache) near6 entr\$3	581	<u>L6</u>
<u>L5</u>	L4 and (scoreboard\$3 or table\$1 or array)	659	<u>L5</u>
<u>L4</u>	l1 and (valid\$6 or invalid\$6) near5 entr\$3	724	<u>L4</u>

DB=PGPB,USPT; PLUR=YES; OP=OR

<u>L3</u>	(712/26-248)![CCLS]	8133	<u>L3</u>
<u>L2</u>	(711/117-221)![CCLS]	15723	<u>L2</u>

DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR

<u>L1</u>	(index\$3 or point\$3) near7 entr\$3 near8 (load or instruction\$1)	2723	<u>L1</u>
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Three extensions to register integration

[Petric, V.](#) [Bracy, A.](#) [Roth, A.](#)

Dept. of Comput. & Inf. Sci., Pennsylvania Univ., Philadelphia, PA, USA

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On page(s): 37 - 47

ISSN: 1072-4451

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Inspec Accession Number: 7568999

Abstract:

Register integration (or just integration) is a register renaming discipline that implements instruction reuse via physical register sharing. Initially developed for squash reuse, the integration mechanism can exploit more reuse scenarios. To describe three extensions to the original design that expand its applicability and performance impact. First, we extend squash reuse to general reuse. Wherea reuse maintains the concept of an instruction instance "owning" its output register, we allow multiple instructions to simultaneously share a single register. Next, we extend the PC-indexing scheme with an opcode-based indexing scheme that exposes more integration opportunities. Finally, we introduce an extension called reverse in which we speculatively create integration **entries** for the inverses of operations. For example, when renaming an add, we create an **entry** for the inverse subtract operation. This integration allows us to reuse operations that the program itself has not executed. We use reverse integration to implement speculative memory bypassing for stack-pointer based **loads** (register fills and restores). Our evaluation shows that these extensions increase the integration rate - the number of retired instructions that can integrate older results and bypass the execution engine - to an average of 15% for SPEC2000 integer benchmarks. On a 4-way superscalar processor with an aggressive memory system, this translates into an average IPC improvement of 7%. The technique of integrating instructions completely bypass the execution engine raises the potential for using integration as a low-complexity substitute for execution bandwidth and buffering. Our experiments show that such a trade-off is possible, enabling a new class of IPC/complexity designs.

Index Terms:

[computer architecture](#) [performance evaluation](#) [instruction reuse](#) [register fills](#) [register integration](#)

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